

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An information providing A warning apparatus for a vehicle, comprising:

a contact possibility information warning unit configured to determine a contact possibility of the vehicle contacting with an object that is present in front of the vehicle according to relative motion between the vehicle and the front object, the contact possibility information warning unit providing [[a]] contact possibility information warning by changing at least one of the driving force and the braking force of the vehicle according to the contact possibility;

a driver intention detector configured to detect a driving intention of a driver of the vehicle, the driver intention detector detecting at least a driving intention of the driver that the driver is driving the vehicle in recognition that the possibility of the vehicle contacting the front object is increasing; and

a warning controller configured to modify at least one threshold for change the timing of providing the contact possibility information warning according to a detection result provided by the driver intention detector.

2. (Currently amended) The information providing warning apparatus of claim 1, wherein:

the driving intention is that the driver intentionally brings the vehicle closer to the front object when the vehicle is driven in a steady state.

3. (Currently amended) The information providing warning apparatus of claim 2, wherein:

the driver intention detector detects a lane change of the vehicle as the intention of the driver in intentionally bringing the vehicle closer to the front object.

4. (Currently amended) The information providing warning apparatus of claim 2, wherein:

the driver intention detector delays the timing of providing the contact possibility information warning in a case where the front object is in a lane to which the vehicle is going to change its lane.

5. (Currently amended) The information providing warning apparatus of claim 1, wherein:
in a case where the driver intention detector detects that the driver is intentionally bringing the vehicle closer to the front object with the vehicle in a steady driving state, the warning controller reduces a control value to change the driving force torque or braking force torque.

6. (Currently amended) The information providing warning apparatus of claim 2, wherein:
in a case where the driver intention detector detects that the driver is intentionally bringing the vehicle closer to the front object with the vehicle in a steady driving state, the warning controller reduces a control value to change the driving force torque or braking force torque.

7. (Currently amended) The information providing warning apparatus of claim 1, wherein:
the relative motion includes a relative speed between the vehicle and the front object;
and

in a case where the driver intention detector detects that the driver is intentionally bringing the vehicle closer to the front object with the vehicle being in a steady driving state, the warning controller changes a control value of at least one of the driving force torque and braking force torque according to the relative speed.

8. (Currently amended) The information providing warning apparatus of claim claims 1, wherein the warning controller releases the modification change made by the warning after a predetermined time.

9. (Currently amended) The information providing warning apparatus of claim claims 2, wherein the warning controller releases the modification change made by the warning after a predetermined time.

10. (Currently amended) The information providing warning apparatus of claim claims 3, wherein the warning controller releases the modification change made by the warning after a predetermined time.

11. (Currently amended) The information providing warning apparatus of claim claims 4, wherein the warning controller releases the modification change made by the warning after a predetermined time.

12. (Currently amended) The information providing warning apparatus of claim claims 5, wherein the warning controller releases the modification change made by the warning after a predetermined time.

13. (Currently amended) The information providing warning apparatus of claim claims 6, wherein the warning controller releases the modification change made by the warning after a predetermined time.

14. (Currently amended) The information providing warning apparatus of claim claims 7, wherein the warning controller releases the modification change made by the warning after a predetermined time.

15. (Currently amended) The information providing warning apparatus of claim 1, wherein:
the contact possibility information warning unit determines a contact possibility by comparing a first time derived by dividing a relative distance between the vehicle and the front object by a speed of the vehicle with a first time threshold and provides [[a]] contact possibility information warning under a first control condition according to the determined contact possibility; and
the warning controller modifies the threshold to delay delays the timing of providing the contact possibility information warning by changing the first time threshold.

16. (Currently Amended) The information providing warning apparatus of claim 15, wherein:

the driving intention is determined as being that the driver intentionally brings the vehicle closer to the front object with the vehicle being driven under a steady state; and

the ~~warning~~ controller reduces a control value to change the driving force or braking force by changing the first control condition.

17. (Currently amended) The information providing warning apparatus of claim 15[[1]], wherein:

the contact possibility information warning unit determines a contact possibility by comparing a second time derived by dividing a relative distance between the vehicle and the front object by a relative speed between the vehicle and the front object with a second time threshold and provides [[a]] contact possibility information warning under a second control condition according to the determined contact possibility; and

~~the warning controller reduces a control value to change the driving force or braking force by changing the second threshold.~~

18. (Currently amended) An information providing A warning apparatus for a vehicle, comprising:

contact possibility information warning means for determining a contact possibility of the vehicle contacting with an object that is present in front of the vehicle according to relative motion between the vehicle and the front object, the contact possibility information warning means unit providing [[a]] contact possibility information warning by changing at least one of the driving force and braking force of the vehicle according to the contact possibility;

driver intention detecting means for detecting a driving intention of a driver of the vehicle, the driver intention detecting means detector detecting at least a driving intention of the driver that the driver is driving the vehicle in recognition that the possibility of the vehicle contacting the front object is increasing; and

~~warning controlling means for modifying at least one threshold for changing the timing of providing the contact possibility information warning according to a detection result provided by the driver intention detecting means detector.~~

19. (Currently amended) An information providing A warning method for a vehicle, comprising:

determining a contact possibility of the vehicle contacting with an object that is present in front of the vehicle according to relative motion between the vehicle and the front object;

detecting a driving intention of a driver of the vehicle, to detect at least a driving intention of the driver that the driver is driving the vehicle in recognition that the possibility of the vehicle contacting the front object is increasing;

calculating, according to the contact possibility, a control value to change at least one of the driving force and braking force of the vehicle; and

modifying a threshold for providing the control value changing the control value
according to a result of the detecting a driving intention.

20. (New) The information providing apparatus of claim 1, wherein:

the controller is configured to track a predetermined amount of time when the driver intention detector detects a driving intention of the driver that the driver is driving the vehicle in recognition that the possibility of the vehicle contacting the front object is increasing;

the controller is configured to determine if the predetermined amount of time has elapsed, wherein if the predetermined amount of time has elapsed the threshold is no longer modified, and wherein if the predetermined amount of time has not elapsed the threshold remains modified.

21. (New) The information providing apparatus of claim 20, wherein:

the controller is further configured to compare a deceleration of the object to a predetermined deceleration value after the controller determines that the predetermined amount of time has not elapsed;

wherein if the deceleration is smaller than the predetermined deceleration value a control value for at least one of the driving force and the braking force, determined according to a relative speed between the vehicle and the front object, is modified to a first value; and

wherein if the deceleration is greater than the predetermined deceleration value the control value for at least one of the driving force and the braking force, determined according to a relative speed between the vehicle and the front object, is modified to a second value.

22. (New) The information providing apparatus of claim 20, wherein:

the driver intention detector detects a lane change of the vehicle as an intention of the driver in intentionally bringing the vehicle closer to the front object;

the controller is further configured to determine if the object is also changing lanes after the controller determines that the predetermined amount of time has not elapsed, wherein if the object is changing lanes the threshold is not modified, and wherein if the object is not changing lanes the threshold is modified.

23. (New) The information providing apparatus of claim 17, wherein:

the controller is configured to determine the first control condition on the basis of a first virtual spring with a first spring length and a first elastic coefficient;

the controller is configured to determine the first spring length on the basis of the first time threshold and the speed of the vehicle;

the controller is configured to determine the second control condition on the basis of a second virtual spring with a second spring length and a second elastic coefficient;

the controller is configured to determine the second spring length on the basis of the second time threshold and the relative speed; and

wherein the controller modifies at least one threshold by changing at least one of the values of the first time threshold, the first elastic coefficient, and the second elastic coefficient.

24. (New) The information providing apparatus of claim 1, wherein the apparatus employs a first virtual spring.

25. (New) The information providing apparatus of claim 1, wherein the apparatus employs a first virtual spring and a second virtual spring.